

Date: Wed, 25 May 94 04:30:39 PDT  
From: Ham-Homebrew Mailing List and Newsgroup <ham-homebrew@ucsd.edu>  
Errors-To: Ham-Homebrew-Errors@UCSD.Edu  
Reply-To: Ham-Homebrew@UCSD.Edu  
Precedence: Bulk  
Subject: Ham-Homebrew Digest V94 #140  
To: Ham-Homebrew

Ham-Homebrew Digest                      Wed, 25 May 94                      Volume 94 : Issue 140

Today's Topics:

FCC licensing delays  
Is there a cheap A/D package with serial ASCII output? (5 msgs)  
Proper way to bias a tunnel diode?  
Ramsey 2m Amp  
Skinny Dip  
Transmitting Tube Cooling (5 msgs)

Send Replies or notes for publication to: <Ham-Homebrew@UCSD.Edu>  
Send subscription requests to: <Ham-Homebrew-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Homebrew Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-homebrew".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Tue, 24 May 1994 18:53:05 GMT  
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!convex!news.duke.edu!eff!news.kei.com!  
world!dts@network.ucsd.edu  
Subject: FCC licensing delays  
To: ham-homebrew@ucsd.edu

Change of address forms for my wife and myself took just over 10 weeks.  
I used the new 610 forms, and mailed them directly to Gettysburg. It  
would be nice if they got a little more help down there, especially since  
most of the new development areas the administration wants to go after  
(information superhighway, PCS, etc.) are things the FCC is responsible  
for.

Of course we might ultimately get more milage if we paid user fees like  
the rest of the spectrum users...

Dan N1JEB

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Daniel Senie                               Internet:       dts@world.std.com  
Daniel Senie Consulting                   n1jeb@world.std.com  
508-779-0439                               Compuserve:     74176,1347  
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Date: Tue, 24 May 1994 14:07:47 GMT  
From: ncrigw2.ncr.com!ncrhub2!ranger!cn2935.DaytonOH.NCR.COM!jra@uunet.uu.net  
Subject: Is there a cheap A/D package with serial ASCII output?  
To: ham-homebrew@ucsd.edu

Does anyone know of an inexpensive A/D that outputs a serial data stream? If that's not available, what would be the simplest microcontroller board that could do this?

I have a piece of test equipment with a chart recorder output (0 to 1 ma). I'd like to sample once per second and store the data in an ascii file on a computer. I have plenty of spare serial ports, but no slots available to add a pc bus D/A board.

Thanks...

John Ackermann     AG9V  
jra@lawdept.daytonOH.ncr.com

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Date: 24 May 1994 14:06:52 GMT  
From: ihnp4.ucsd.edu!swrinde!emory!news-feed-2.peachnet.edu!hobbes.cc.uga.edu!aisun3.ai.uga.edu!mcovingt@network.ucsd.edu  
Subject: Is there a cheap A/D package with serial ASCII output?  
To: ham-homebrew@ucsd.edu

In article <jra.134.0009217C@lawdept.daytonOH.ncr.com>  
jra@lawdept.daytonOH.ncr.com (John Ackermann) writes:  
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>computer. I have plenty of spare serial ports, but no slots available to add  
>a pc bus D/A board.

See recent issues of both Computer Craft and Dr Dobb's Journal for articles on how to use serial-output ADCs. The outputs are not RS-232, and it's

easier to attach them to a parallel port than a serial port (even though the bits are sent serially).

--

< Michael A. Covington, Assc Rsch Scientist, Artificial Intelligence Programs >  
< The University of Georgia, Athens, GA 30602-7415 USA    mcovingt@ai.uga.edu >  
< Unless specifically indicated, I am not speaking for the University. >    <><  
For information about any U.Ga. graduate program, email gradadm@uga.cc.uga.edu.

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Date: 24 May 1994 12:09:44 -0700  
From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!spool.mu.edu!  
news.clark.edu!netnews.nwnet.net!saturn.wwwc.edu!shasta.wwwc.edu!not-for-  
mail@network.ucsd.edu  
Subject: Is there a cheap A/D package with serial ASCII output?  
To: ham-homebrew@ucsd.edu

You might check out Micro Linear's ML2223 A/D. It has just what you want, a built in UART. Your computer must be able to receive 8 data bits plus one stop bit. It is a 12 bit A/D and quite nice. There are also other ones made by Crystal Semiconductor and Analog Devices if I remember right that have lots of other options at a much greater cost (> \$40 / chip).

--

Rob Frohne  
E. F. Cross School of Engineering, Walla Walla College  
Phone: (509) 527-2075    FAX: (509) 527-2867  
Internet e-mail: frohro@wwwc.edu

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Date: Tue, 24 May 1994 18:58:31 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!europa.eng.gtefsd.com!  
news.umbc.edu!eff!news.kei.com!world!dts@network.ucsd.edu  
Subject: Is there a cheap A/D package with serial ASCII output?  
To: ham-homebrew@ucsd.edu

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>computer. I have plenty of spare serial ports, but no slots available to add  
>a pc bus D/A board.  
>

Check out the Postage Stamp board. It's a little RISC engine programmed with  
a BASIC interpreter. There's some good stuff in this month's Nuts & Volts,  
and the Parallax stuff is available from DigiKey.

The processor boards are 1 inch by 2 inches. There are 8 I/O pins that can  
be used for several purposes, including serial I/O. Processor boards are  
\$39 from digikey (power is a 9V battery, or build a power source), and  
a development kit is somewhere around \$130, including on processor board.

I'm planning on taking a closer look at these, as they would appear to be  
a VERY cheap way to implement a lot of stuff...

Dan N1JEB

--

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Daniel Senie                                   Internet:       dts@world.std.com  
Daniel Senie Consulting                       n1jeb@world.std.com  
508-779-0439                                 Compuserve:   74176,1347  
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Date: 25 May 1994 00:12:13 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!usenet.ins.cwru.edu!po.cwru.edu!  
sct@network.ucsd.edu  
Subject: Is there a cheap A/D package with serial ASCII output?  
To: ham-homebrew@ucsd.edu

You could do the A/D conversion in software on the PC. Dual-slope  
integration is accurate and requires as little as one digital output  
and one digital input. DTR, DSR, RTS, and CTS on the serial port  
could serve for the I/O.

At 1 Hz samples, it's not going to put much of a demand on the CPU.  
Accurate timing is a must, though, so you need either a high-resolution  
timer or the ability to turn off interrupts for long enough to do  
software timing.

Stephen

--

Stephen Trier  
sct@po.cwru.edu  
KG8IF

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Date: Tue, 24 May 1994 14:48:45 GMT  
From: ihnp4.ucsd.edu!usc!math.ohio-state.edu!magnus.acs.ohio-state.edu!csn!  
col.hp.com!news.dtc.hp.com!hpscit.sc.hp.com!cupnews0.cup.hp.com!news1.boi.hp.com!  
hp-pcd!hpcvsnz!tomb@network.UCSD  
Subject: Proper way to bias a tunnel diode?  
To: ham-homebrew@ucsd.edu

Joe Mack (mack@ncifcrf.gov) wrote:  
: In article <Cq9u3M.9sp@koko.csustan.edu> jacob@altair.csustan.edu (Dave Jacob)  
writes:

: > know tunnel diodes are an extinct species, hence the trouble  
: >I am having locating circuits for them, but does anyone out there  
: >know how to bias these little demons so that they remain stable?

: This is not my line, and so comes under the category of ANY advice...  
: 2  
: You need to current bias as there are 3 places on the v-i  
: curve for the tunnel voltage. So find the tunnel current first (from  
: specs), and you don't get any choice about the voltage.

Eh? For a given \_current\_ there can be up to three possible \_voltages\_.  
But for a given \_voltage\_ there is only one \_current\_. So if you want  
it stable, bias it with a \_voltage\_. Use a very low impedance source.  
It must be low impedance at all frequencies that the diode is likely to  
oscillate at, or you may have trouble in the negative resistance region.

73, K7ITM

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Date: 24 May 1994 16:50:57 -0400  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!usenet.ins.cwru.edu!  
ns.mcs.kent.edu!kira.cc.uakron.edu!malgudi.oar.net!news.pipeline.com!not-for-  
mail@network.ucsd.edu  
Subject: Ramsey 2m Amp  
To: ham-homebrew@ucsd.edu

Hi everyone. I just came accross an old Ramsey 2m amp kit that  
I attempted to build a few years ago in summer camp.  
Unfortunately, I wasn't very good at building stuff back then,  
and I did a pretty bad job of putting it together. The folks  
at Ramsey won't help, so I was wondering if anyone would be  
willing to take a look at it and give a shot at getting it to  
work. I would be willing to pay a bit to have this done, if ya  
really want \$\$\$\$. It seems kind of a shame to let a \$50  
40-watt amp go to waste, eh? Thanks for any help in advance...

Noah AA2KT  
blaknite@pipeline.com

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Date: 24 May 1994 04:42:24 -0400  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!gatech!usenet.ufl.edu!  
usenet.cis.ufl.edu!anshar.shadow.net!anshar.shadow.net!nobody@network.ucsd.edu  
Subject: Skinny Dip  
To: ham-homebrew@ucsd.edu

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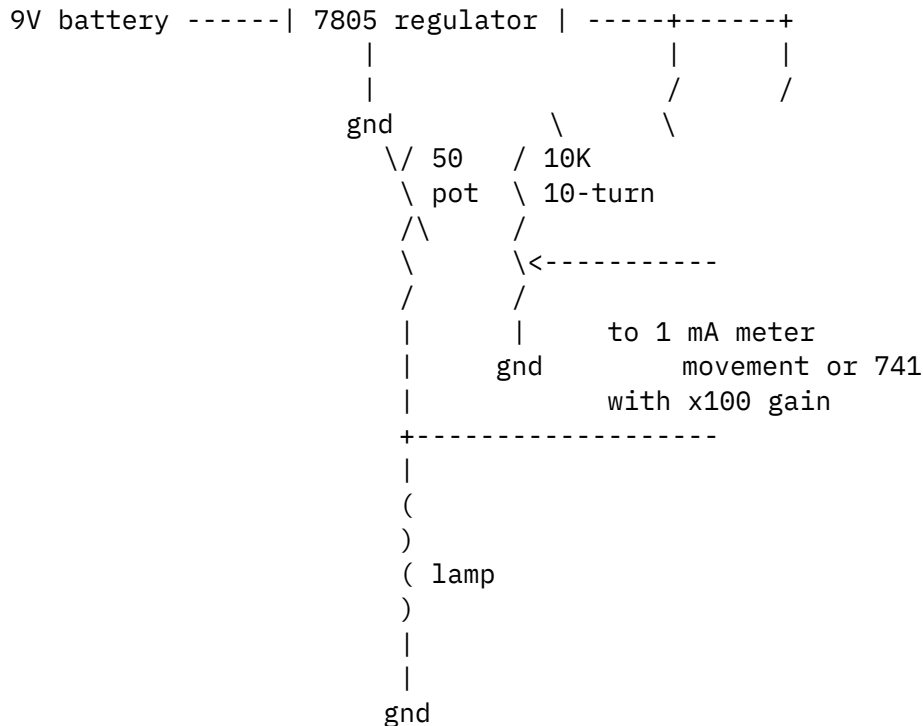
-----  
Date: Tue, 24 May 1994 15:35:38 GMT  
From: ihnp4.ucsd.edu!library.ucla.edu!csulb.edu!csus.edu!netcom.com!  
kludge@network.ucsd.edu  
Subject: Transmitting Tube Cooling  
To: ham-homebrew@ucsd.edu

In article <1994May23.143229.2676@ccd.harris.com> drs@ccd.harris.com (Elie Nasr)  
writes:

>

>Anybody ever made any sort of measuring device for measuring the back pressure  
>in a cooling system for a transmitting tube? I have seen references to things  
>like so many cubic feet of air flow. Or .6 inches of backpressure. Or does  
>everyone just make sure they are running a blower that is over-rated just to  
>be safe? I'd prefer to do it right, since the bigger the blower, the more

What you need is a hot-wire anemometer!



The lamp is a 12V automotive bulb, with the envelope broken and the filament exposed to air. Before breaking the bulb, set the 50 ohm pot so that the lamp just barely glows, then back off slightly until it no longer glows at all. Then set the 10K pot for zero output level. Now break the envelope.

You will see a significant DC offset on the output with the envelope broken, because the filament is exposed to air which cools it considerably, reducing its resistance. The greater the airflow, the less resistance, and the greater the meter reading. You will need a couple of fans with known air speed rates to calibrate it.

This will only measure velocity, not volume, so you need to multiply by the area of the cross-section of the chamber which you've got the thing in in order to get a flow rate.

For better accuracy, you can replace the 10K resistor with two fixed resistors and a pot so that the varies along a much smaller range. I give the above as an example that works and is an easy proof of concept model.

This is not as sensitive to ambient temperature as you might expect, either. If you are worried about that, you can run the filament hotter, but you will have a much shorter lifetime of the lamp.

--scott

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"C'est un Nagra. C'est suisse, et tres, tres precis."

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Date: Tue, 24 May 1994 18:48:52 GMT  
From: ihnp4.ucsd.edu!usc!howland.reston.ans.net!math.ohio-state.edu!  
magnus.acs.ohio-state.edu!csn!col.hp.com!srngenprp!alanb@network.ucsd.edu  
Subject: Transmitting Tube Cooling  
To: ham-homebrew@ucsd.edu

Elie Nasr (drs@ccd.harris.com) wrote:

: Anybody ever made any sort of measuring device for measuring the back pressure  
: in a cooling system for a transmitting tube? I have seen references to things  
: like so many cubic feet of air flow. Or .6 inches of backpressure. ...

The standard way to do it is with a plastic tube filled with water. Seal one end of the tube inside the chassis and fasten the other end somewhere in the outside air. Turn on the blower and note how much the water level changes.

However, the real thing you are concerned about is not the air pressure, but the temperature of the tube. The base seals are generally the critical components. A good inexpensive way to measure the temp is to use temperature-sensitive paint (Tempilac brand, for example). The paint changes color when it reaches its critical temperature. Buy using several different paints of different critical temperatures, you can determine the maximum seal temperature.

AL N1AL

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Date: Tue, 24 May 1994 22:36:13 GMT  
From: iat.holonet.net!vectorbd!jp11@uunet.uu.net  
Subject: Transmitting Tube Cooling  
To: ham-homebrew@ucsd.edu

Elie Nasr (drs@ccd.harris.com) wrote:

: Anybody ever made any sort of measuring device for measuring the back pressure  
: in a cooling system for a transmitting tube? I have seen references to things  
: like so many cubic feet of air flow. Or .6 inches of backpressure. Or does



You can make a simple "U-tube" manometer with plastic tubing and water and measure "inches of water" pressure/vacuum that way.

-Jim (Harris Corp/RF Comm Group)

--

-Jim Lill-  
jpll@vectorbd.com  
wa2zkd@wb2psi.#wny.ny.usa.na

Vector Board BBS  
716-544-1863/2645  
GEnie: ZKD

-----  
Date: 25 May 1994 01:14:02 -0400  
From: newstf01.cr1.aol.com!search01.news.aol.com!not-for-mail@uunet.uu.net  
Subject: Transmitting Tube Cooling  
To: ham-homebrew@ucsd.edu

In article <kludgeCqBCnF.JwM@netcom.com>, kludge@netcom.com (Scott Dorsey) writes:

>Anybody ever made any sort of measuring device for measuring the  
>back >pressure  
>in a cooling system for a transmitting tube?

Eimac frequently shows a manometer for measuring backpressure. A manometer is similar to a barometer in that it is a u-shaped tube of fluid, usually water, with the "free" end open to atmosphere and the "business" end attached to the pressurized compartment. The tube is only partially filled with water, to fill in the "U". Not so much to spill into the pressurized compartment! With the compartment pressurized, the difference in the levels of the water in the tube are a measure of the backpressure in the compartment. The exact calculation of pressure depends on the cross-sectional area of the tube and (i guess) the barometric pressure at the time of measurement. I can send you some copies of Eimac application notes if you're interested.  
scott nx7u

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Date: Wed, 25 May 1994 09:13:50 GMT  
From: ihnp4.ucsd.edu!agate!howland.reston.ans.net!pipex!uknet!bcc.ac.uk!news@network.ucsd.edu  
Subject: Transmitting Tube Cooling

To: ham-homebrew@ucsd.edu

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>everyone just make sure they are running a blower that is over-rated just to  
>be safe? I'd prefer to do it right, since the bigger the blower, the more

Measuring back pressure is fairly easy, using a manometer. A tube (> 4mm id) is bent in a U. Stich one end, into the pressurised volume, as right angles to the fan. Fill manometer with water, then measure height difference between sides. See the book "are and feeding of power grid tubes", by Eimac, which you can get from a Varian distributor.

PS

If you put an elastic band around tube anode, which holds a microswitch closed, then if the fan fails, band melts, microswitch opens .....

davek

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End of Ham-Homebrew Digest V94 #140

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